

Value-based health-care principles in health-care organizations

Value-based
health-care
principles

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Abstract

Purpose – This study aims to analyze the value-based health-care model in defining a strategy to guide the evolution of health-care organizations toward a value-oriented model. To improve the quality of care by ensuring economic sustainability, it is necessary to redefine the concept of competition in healthcare and align it with the concept of maximizing value for patients.

Design/methodology/approach – Performance measurement is a crucial aspect of the analysis of health-care organizations. Porter developed an effective analytical technique and presented the measurement of health-care outcomes based on health conditions, the efficiency of health-care organizations and the type of service provided.

Findings – Clinical outcomes and data on the costs of care of each patient are essential to evaluate improvement in treatment value over time. Engaging in the evaluation of what happens to patients in their course of care enables the expansion of the measurement of outcomes because it measures all the health services related to it.

Originality/value – Building a health-care system based on the value and continuous improvement of care and services provided is a goal shared by many countries and international organizations. Today, the analysis of outcomes is important for making informed decisions, directing and planning clinical and organizational changes by improving the quality of care and services.

Keywords Value, Health-care management, Health-care organizations, Cost analysis, VBHC, Remuneration systems

Paper type Research paper

Introduction

The World Health Organization defines the state of health as follows: “Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity” (World Health Organization, 1946, pp. 19–22).



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The state of health cannot be summarized with a single indicator, and it is necessary to select and monitor a set of indicators for each pathology to understand the different dimensions of the generic concept of “health” (Veillard *et al.*, 2005; Fanelli *et al.*, 2017). The idea of measuring and monitoring health outcomes over time, as well as monitoring the costs of care, emerged over twenty years ago (Lambert *et al.*, 1998; Muennig and Bounthavong, 2016), but the idea of developing an equation that relates outcomes (such as efficacy, tolerability of treatment and complications) to the direct and indirect costs incurred by the health system is new (Signorelli *et al.*, 2017). The equation identified in the concept of “value”, not intended as an abstract concept, but as a real measure capturing the different dimensions of health and combining them in a single value (Yong *et al.*, 2010). Value is thus the maximum health protection achieved for every euro spent.

Excess or insufficient treatments, excess or defective diagnoses, uncontrolled costs, and ineffectively distributed incentives are just some problems of health-care organizations which can be tackled through the concepts, practices, and tools of value-based health-care (VBHC) (Porter, 2008). VBHC concerns the integrated management of a clinical condition (disease management) considered in the context of the treatment process as a whole rather than as an individual care episode (Bardhan *et al.*, 2020). Its goal is to maximize value for patients by evaluating the outcome of treatments through scientifically valid performance indicators which are transparent and easily usable in practice. Competition between health-care organizations for the best results is a factor in optimizing resources (Walker *et al.*, 2005; Yong *et al.*, 2010), but value creation does not necessarily require a greater investment in terms of expenditure. In fact, a key reason for the growing interest in VBHC, particularly in the United States, is the need to overcome the problems related to rising costs and a stagnant economy, which in healthcare lead to difficulty in planning expenditure budgets effectively (Porter, 2008).

Measuring the value of healthcare has become increasingly important in recent years (Porter and Teisberg, 2006; Roskiet *et al.*, 2014; Phelps and Madhavan, 2017), and VBHC is an innovative method useful for restructuring health-care organizations to create value for its users. In the difficult contexts in which health-care organizations operate, particularly in recent times, value emerges as a concept that all stakeholders need to consider. In fact, it is usually the case that health-care providers pay more attention to accessing financing and rationalizing services than creating value for patients.

So providers, patients, stakeholders, taxpayers, and managers are all required to improve health outcomes as efficiently as possible. Originally the concept of outcome meant results relevant to patients (e.g. reduction of mortality and complications, improvement of disease prognosis, reduction of symptoms and pain, improvement of quality of life, and reduction of adverse effects) (Kaplan, 1989). Today, however there are two perspectives on outcome:

- (1) the perspective of drug and technology manufacturers, expanding the criteria of outcome to include results not strictly related to patient health; and
- (2) the perspective of public and private lenders, expanding the criteria to include both direct and indirect costs (Whellan *et al.*, 2007; Sorenson *et al.*, 2008; Wendt *et al.*, 2009).

The remainder of this paper is structured as follows. The first section deals with the topic of VBHC measurement in the health-care context, discussing the need to reorganize the provision of value-based health services. The second section focuses on techniques for measuring the results of treatment by extending Porter’s VBHC model. There is then a section on health outcomes and health-care productivity which discusses the organizational models of health-care organizations. The last section concludes and describes possible consequences for stakeholders of health-care organizations.

Value-based health-care principles

VBHC is an innovative concept, defined by Michael Porter as the return in terms of health of the resources invested in healthcare. Value is expressed as the ratio between outcomes in terms of health for patients (favorable outcomes *vs.* adverse effects) and costs incurred by the health system (Ferraris *et al.*, 1998; Lee *et al.*, 2016). This value can be calculated at the level of both care and individual health service (Porter, 2010). In the literature, the concept of outcome includes only patient-relevant outcomes, i.e. reduced mortality and complications, improved disease prognosis, reduced symptoms and pain, improved quality of life, and reduced adverse effects (DeWalt *et al.*, 2004). But little attention has been given to measuring outcomes useful for providing improved and value-based health services. From the VBHC perspective, the measurement of results is parallel to the measurement of costs (Tsevat and Moriates, 2018) and it does not entail evaluating all of a process or variations which do not contribute to improving health results (Porter *et al.*, 2016). Processes need to be redefined and reclassified to decrease waste of finance and time resources, and need to be optimized within a service cycle. To provide value-based health services it is necessary to do the following (Porter *et al.*, 2016):

- reorganize care considering patients' health conditions;
- integrate the specialties of professionals;
- define reimbursement models based on value;
- create pathways of care;
- share best practices to produce knowledge and excellence; and
- create dynamic platforms to collect data.

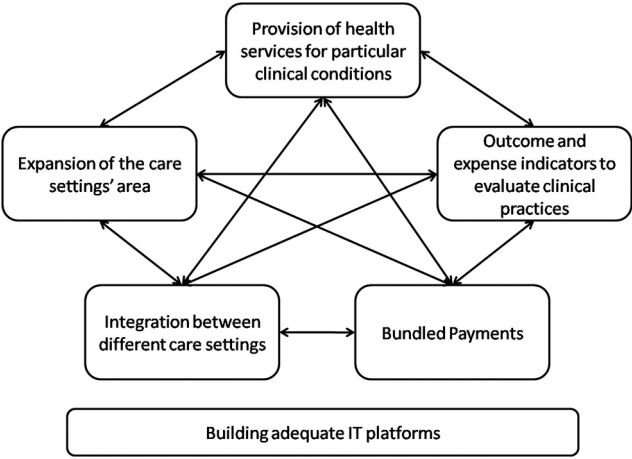
To respond to emerging challenges, health system organizations around the world are evolving toward an integration of the health and socio-health services, including those provided at home (Koplan and Fleming, 2000; Jackson *et al.*, 2006). At the technological level, the challenge is linked to the ability of health-care systems to adequately support adoption of new technologies in a sector characterized by regulatory and cultural constraints (Wouters *et al.*, 2016). The literature highlights the need for a strategic approach that can guide the hospital toward a value-oriented model that maximizes the relationship between outcome and costs (Ferraris *et al.*, 1998; Luu *et al.*, 2016). This study focuses on an analysis of the VBHC model. VBHC strategy is based on six principles intended to guide health-care organizations toward a value-oriented model. Value-based medicine is also based on the concept that to improve the quality of care by ensuring economic sustainability, it is necessary to redefine the concept of competition in healthcare and align it with the concept of maximizing value for patients. As this value increases, economic sustainability improves to the benefit of all stakeholders.

Measurement techniques for health outcomes: Porter's model

Performance measurement in health is crucial in the analysis of health-care organizations (Smith, 2005; Porter, 2010). Porter (2010) suggests that the results of treatment evaluation should be presented according to the health conditions, the efficiency of the health-care organizations, and the type of care service provided. Evaluation should reflect the overall cycle of care, in both short and long term, with reference to a period of time long enough to obtain the best outcomes. Figure 1 shows the six principles of VBHC and their interconnecting relationships.

VBHC strategy uses six principles to guide health-care organizations toward a value-oriented model. These principles are as follows:

Figure 1.
The VBHC principles
and their
interconnecting
relationships



- (1) Organize the delivery of health services in relation to clinical conditions by generating integrated practice units (IPUs). This means structuring the care process around patients and their needs. Within the IPU, a dedicated multidisciplinary team is responsible for the entire treatment cycle, which consists of prevention, diagnosis, treatment, rehabilitation, and monitoring any complications. Dedicated infrastructures and integrated operational management are set up, in which patients are treated and also receive support and information.
- (2) Develop robust and easily usable outcome and cost indicators to evaluate clinical practice. Shift focus from the volume and profitability of individual services (e.g., medical visits, hospitalization, procedures, and tests) toward patient outcomes (health outcomes). Valid and specific indicators must be generalizable for each condition (health status).
- (3) Bundled payments are made, including for acute conditions, chronic conditions for a defined time period (usually one year), and for prevention strategies for a target sector of the population. The financial model evolves toward a system that incentivizes and simultaneously improves health outcomes while at the same time reducing costs.
- (4) Integrate care processes to avoid their fragmentation and duplication. To do this, it is necessary to define the purpose of the integration, concentrate resources in a small number of structures, in carefully chosen locations, and integrate the treatment cycle between the different structures.
- (5) Expand the area covered. Geographical location is not a sufficient criterion in supplying patient care. Highly specialized centers cover wide geographical areas by way of excellent IPUs.
- (6) Develop an appropriate information platform. Overcome the logic of the department or service infrastructure and build a platform that can follow patients throughout their entire treatment cycle. The platform should record all data and be used for monitoring and evaluating purposes, assisting the members of the interdisciplinary team.

Results

Health outcomes and productivity

Health-care providers need to acquire data on specific patient-centered outcomes, and on the costs for the care of each patient, to measure improvement in the value of care over time (Hoffmann *et al.*, 2002; Thokala *et al.*, 2016). However, systematic data collection is not only not encouraged but is also often hindered by organizations. Information systems are usually designed to primarily assist health-care professionals in carrying out their clinical practice and define related costs. As a result, important information on outcomes is not regularly recorded, and data related to patients' status is often impossible to obtain from medical records. The information that is generally of interest to health providers concerns the productivity of staff, in terms of the number of medical visits and relative costs.

The assessment of what happens to patients during the course of health-care treatment and the analysis of how health services are delivered reveals that there are important challenges. Outcome measurement involves measuring and managing individual events, such as hospitalization, as well as the duration of the therapeutic cycle. This type of analysis has recently become more important and has implications for clinical practice, but it can be difficult when the services are delivered by different providers.

Implementing the concept of value in healthcare requires teamwork. It involves the acquisition of data generated in the care delivery system and sharing responsibility for providing health services by the different actors in the health system. Outcomes cannot be improved and health-care costs cannot be reduced without active cooperation between different providers. Deep cultural and organizational change is often required for health workers to collaborate as a single organization focused on efficiently achieving the best health outcomes. Value could in fact be a useful tool in creating a context for improvement at the levels of health-care organization and individual health professionals, as well as a tool for comparing the different care providers. This goal is far from simple, but is the case that outcome and cost assessment initiatives have multiplied in recent years, and health professionals often sometimes been organized in multidisciplinary teams. Furthermore, the incentive system has also evolved, rewarding the providers most effective in creating "value" for patients. However, the improvement in the care provision is in many cases not sufficient to overcome economic problems, and patients are also likely to bear the increased costs. In these uncertain times, stakeholders and health-care professionals are facing new challenges. The application of VBHC to health-care organizations and the recognition of the concept of value constitute a new perspective.

Discussion

Implementation of the value-based health-care

Innovations in science, medicine and technology have significantly lengthened human lifespan in many parts of the world. But at the same time, these innovations have generated big challenges in the field of human health, such as the management of chronic diseases, which requires the intervention of different professionals for a long period of time (Epping-Jordan *et al.*, 2004; Lewis and Dixon, 2004). The management of complex situations requires the redefinition of the organization as a whole, and new and improved organizational models. Redefining the organization means breaking down the health organization into sub-parts which manage processes in an integrated way and follow strategies to achieve the goals of the organization (Enthoven *et al.*, 2007). One of the objectives of the VBHC is to shift attention from the volume of services provided toward value for patients. This implies that the organizational model must shift from a vertical approach to health to a transversal and

personalized approach. This type of approach is linked to demand for improved services and the involvement of the various stakeholders and the relationships between them (Malfait *et al.*, 2017). The implementation of appropriate pathways of care can achieve this objective by ensuring an improved quality of life. A care pathway can thus be seen as an organizational model and the result of a multidisciplinary process of specific and structured actions developed by different stakeholders.

The complexity of the health-care system can create situations that lead to variability, lack of appropriateness, and lack of integration of care services. All these conditions make error more likely and can generate low or inadequate quality of care (Paley, 2010). For this reason, complex processes are analyzed by “function”, in what is widely termed “structural analysis” in healthcare. Analysis of care pathways is based on the principle that variability is caused by methods of distributing assistance, organizational, and operational aspects as well as clinical performance (Keating, 2000).

A care pathway can be considered multidisciplinary as it combines different elements, including good clinical practice, quality control and its implementation, planning and any changes (Ouwens *et al.*, 2005). There is no single definition for an “integrated path of care”; some health organizations link the definition to groups of patients or cases (case reports) and others to particular health conditions or pathologies (Vanhaecht *et al.*, 2010; Deneckere *et al.*, 2012). According to the definition of the European Pathway Association:

[...] the course of treatment is a complex intervention of treatment processes in which organizational and decision-making factors are involved for a well-defined group of patients in a well-defined period of time (Schrijvers, 2012).

The main features of a care pathway are as follows:

- defines the objectives and key elements of assistance based on evidence, good practice and patient expectations;
- facilitates communication among team members, patients and family members;
- facilitates the coordination of the care process by assigning the roles and activities of the multidisciplinary team, patients and caregivers;
- documents, monitors and evaluates variances and results; and
- identifies appropriate resources.

The pathway combines all evidence-based multidisciplinary practices in the optimal provision of health services for all patients who have a specific condition or undergo the same procedure. Consequently, the clinical pathways designed and monitored according to well-defined steps improve patient outcome, trigger a useful mechanism to coordinate care and reduce fragmentation, and improve the quality of health service provided.

The steps are as follows:

- Collection and sharing of high-quality data. This relies on the efficiency of information systems in terms of analyzing data for accurate completion of the procedural part. The involvement of clinicians is important to achieve the sound results in data analysis, which should be shared transparently among all the actors involved. VBHC requires the active dissemination and extensive use of outcome data.
- Analysis of variances, i.e. differences between what is expected and what is actually achieved.
- Identification of best practice, closely correlated with the next step.

- Analysis of behavioral change. This is crucial, as there can be resistance to change. It is usually easier to continue with consolidated routine and practice, and change requires greater effort and determination. The key aspects of this phase are communication, distribution of information about the strengths of the new approach, and involvement of stakeholders in discussion.
- Feedback on the changes made to the process.

The five steps make up a virtuous cycle generating value throughout the care pathway which is thus useful for improving quality (Figure 2).

Value-based health-care: financial sustainability

In the long term, the challenges faced by health systems lie in their ability to provide high-value health services as well as financial sustainability (Chernew *et al.*, 2007). They need to have access to sufficient resources to continue ensuring adequate and good quality health coverage, and financial sustainability is a necessary but not sufficient condition for their sustainability. Budget constraints can reduce the ability of the “third-party payer” to finance the health services necessary to guarantee adequate health coverage for citizens. For decades, sustainability has been assessed using the cost-effectiveness analysis method (Verguet *et al.*, 2016). Several regulatory authorities suggest the use of quality-adjusted life years (QALYs) as a summary indicator of the effect of a new therapy on life expectancy and its quality (Kind *et al.*, 2009; Pettitt *et al.*, 2016), although there are some methodological doubts about the ability of QALYs to effectively capture the benefits of a therapy. QALYs do not differentiate between pathologies but provide a correct life measurement for cost-effectiveness and cost-utility analyses for all types of disease.

Experience in other sectors suggests that the systematic measurement of outcomes is the *sine qua non* for increasing value. It also suggests that value-based reimbursement models should be adapted to the field of healthcare (Vujicic, 2009). In healthcare, “bundled payment” is the reimbursement of health-care providers on the basis of clinical costs classified by an assistance process. It is a perspective overall payment system for the services of individual providers, lying between the systems of fee-for-service and the capitated structure (Sood *et al.*, 2011). In a fee-for-service system, the cost is linked to the volume of services offered (Adida *et al.*, 2017). In the “bundle”, on the other hand, there is an incentive to use resources appropriately to reduce costs, so the system reduces the supply of unnecessary services during hospitalization and post-hospitalization, and decreases hospital readmissions. If the total cost is less than the amount established by the bundle payment, there will be a gain for the providers; if the patient has not been properly treated, a loss will be incurred (Vujicic, 2009).

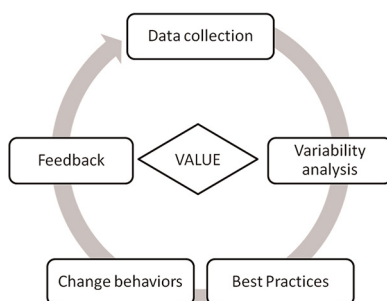


Figure 2.
The care pathway

The method of remuneration is a fundamental aspect of the provision of health services, not only as a necessary structural feature but because it also influences the behavior of providers (Scott *et al.*, 2018). Health systems have different remuneration systems, which sometimes coexist to remunerate different services at various levels. For example, outpatient services are typically remunerated by service offered (fee-for-service), whereas hospitalization is remunerated on the basis of the average resources necessary to provide the service identified by the disease-related group code (episode-based). These examples give an idea of the power of the remuneration system in leading organizational change and influencing clinician behavior in the health system. In the absence of control mechanisms, fee-for-service remuneration incentivizes an increase in the number of services, while episode-based remuneration increases efficiency, bringing however the risk of lowering quality of care.

In the light of the above, it is clear that remuneration systems can be developed which guide the behavior of health-care organizations toward the care needs of chronically ill patients, enhance the professionalism of health workers, and ensure an economic balance (Figure 3).

Some of the different forms of remuneration shown in Figure 3 promote the integration of care. The first method is enhancing the coordination of care services (pay-for-coordination), through which programming, organization, and monitoring of individual care pathways can be promoted (case management). Payment based on the achievement of objectives, measurable with process indicators (e.g. integration and continuity of care), has the potential to guide the system to meet the needs of chronically ill patients (pay-for-performance) (Cashin *et al.*, 2014).

A system of bundled remuneration reflects a more structured approach. This type of system integrates a series of services related to a specific condition (e.g. a specific chronic disease) for a fixed period of time. These systems are applicable to disease management programs, and they typically include all or part of the services deemed necessary based on the care pathways and the management of the disease. Instead, the “capitated structure” is a form of remuneration that requires the payment of a fixed fee to cover a set of services for a specific period of time. Finally, the clinical risk-adjusted capitation is a reimbursement method that provides stratifies the population according to levels of clinical severity and absorption of resources. This method allows for identifying the average cost associated with the necessary health services (full or partial capitation) for patient management for an exact period of time (Hughes *et al.*, 2004).

Where a bundled payment system is used, there is the need to identify the institution and/or professional bearing clinical responsibility for managing chronic patients and associated resources in line with the principle of accountability. The different remuneration systems also need to be integrated into the supply system, generating mixed or blended models in which different types of remuneration can be combined to cover different services for the same patient.

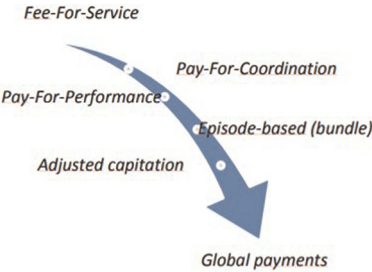


Figure 3.
Remuneration
methods for health
systems

Conclusions

The use of a patient-centered care path is a guarantee of the effective management of “global” needs and of building an empathic relationship between the care team and the patient (Hong *et al.*, 2019). As noted above, the care path can be considered a governance tool because is developed by identifying and enhancing all components of the care supply chain, regardless of their position, and by enhancing the value of all professional contributions. It is a tool which makes the performance of professionals, i.e. experts in clinical and care techniques, measurable, in relation to patients, who are often in turn experts as bearers of knowledge linked to their clinical history. The VBHC model was launched by the International Consortium for Health Outcome Measurement (ICHOM), a nonprofit organization founded in 2012 by Professor Michael E. Porter, which includes the Harvard Business School, the Karolinska Institute, and the Institute Boston Consulting Group as partners. The ICHOM aims to define the benchmarks for each pathology and promote the adoption and diffusion of these benchmarks worldwide. The sharing of outcomes between health-care organizations and international organizations enables continuous improvement in the treatment of specific needs (Schuyve, 2000).

In conclusion, the adoption of VBHC has consequences for patients, health-care organizations, and local authorities. Patients obtain a better quality of care, feel involved in the therapeutic process, and participate in determining the progress of their clinical results over time. Health-care organizations can balance process efficiency and result effectiveness by enhancing professionals. Local authorities can identify economic and political implications by monitoring public health.

Finally, since management studies to date have not agreed on a single definition of VBHC, further empirical research and case studies are encouraged to increase awareness and knowledge on this topic.

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